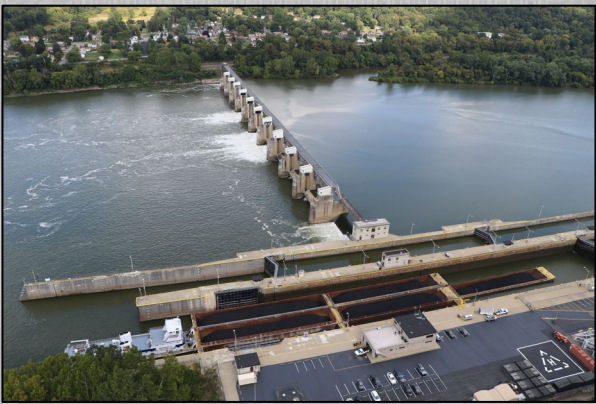


UPPER OHIO NAVIGATION PROJECT

INLAND WATERWAYS USERS BOARD MEETING NO. 100

Christopher Dening
U.S. Army Corps of Engineers
Pittsburgh District
20 July 2023

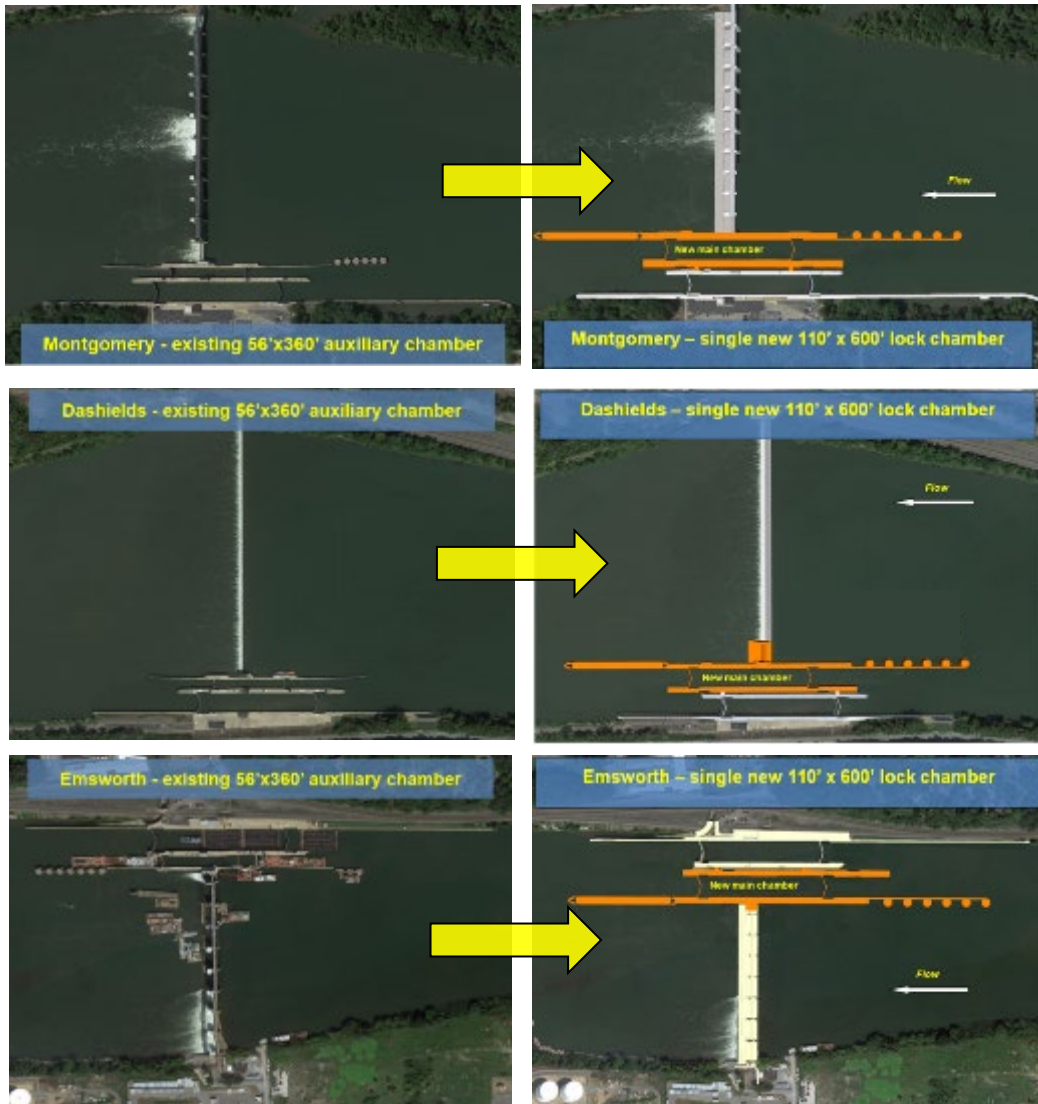
*World-Class Delivery...
Real-World Impact!*



US Army Corps
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PROJECT OVERVIEW OF SCOPE



Montgomery - existing 56'x360' auxiliary chamber

Montgomery - single new 110' x 600' lock chamber

Dashiels - existing 56'x360' auxiliary chamber

Dashiels - single new 110' x 600' lock chamber

Emsworth - existing 56'x360' auxiliary chamber

Emsworth - single new 110' x 600' lock chamber

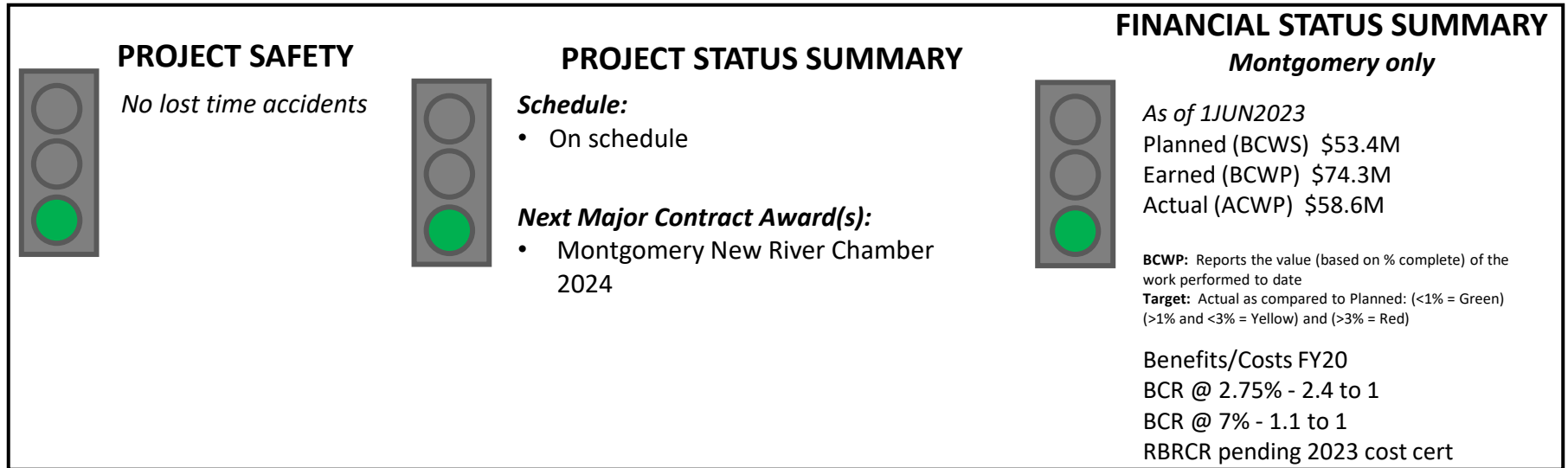
Pre-Project

Post-Project

Major Project Features

- Similar work at Montgomery, Dashiels, & Emsworth
 - Remove the existing 56' x 360' Auxiliary Chamber
 - Construct a new 110' x 600' Main Chamber
 - Modifications to dams

UPPER OHIO PROJECT - BLUF STATUS - SUMMARY DASHBOARD



EXECUTIVE SUMMARY:

- Montgomery cost certification completed 16 June 2023.
- Total project cost update
- Montgomery lock design and a significant portion of the construction was funded by the Bipartisan Infrastructure Law (BIL)
- Emsworth lock design and a small portion of construction was funded by the BIL
- Overall project schedule to be informed by the Capital Investment Strategy (CIS)

UPPER OHIO – OVERALL PROJECT FUNDING SUMMARY

	GI-PED	BIL	CG	IWTF	Total
Upper Ohio Total Project Cost (BIL 2022 Index)					\$ 3,249,218,000
FY17 Appropriation	\$ 5,525,000				\$ 5,525,000
FY18 Appropriation	\$ 2,353,000				\$ 2,353,000
FY19 Appropriation	\$ 2,500,000				\$ 2,500,000
FY20 Appropriation	\$ 7,700,000				\$ 7,700,000
FY21 Appropriation			\$ 14,300,000	\$ 7,700,000	\$ 22,000,000
FY22 Appropriation		\$ 934,708,000	\$ 6,282,650	\$ 6,517,350	\$ 947,508,000
Total Appropriation to Date:	\$ 18,078,000	\$ 934,708,000	\$ 20,582,650	\$ 14,217,350	\$ 987,586,000
<i>Remaining Balance:</i>					\$ 2,261,632,000
Remaining Balance Change From Last Meeting:					\$ -
Total Allocations to Date:	\$ 18,078,000	\$ 22,333,500	\$ 20,582,650	\$ 14,217,350	\$75,211,500

Commentary:

- Montgomery Design: present - 2023
- Montgomery Construction 2024 - 2033
- Emsworth Design: 2023 - 2025
- Emsworth Construction: 2032 – 2042 (CIS dependent)
- Dashields Design: 2025 – 2027 (CIS dependent)
- Dashields Construction: 2043 - 2051 (CIS dependent)

UPPER OHIO – MONTGOMERY LOCK FUNDING AND KEY ACTIVITIES

	GI-PED	BIL	CG	IWTF	Total
Montgomery Lock Total Cost (Certified 2023)					\$ 1,698,572,000
FY17 Appropriation	\$ 5,525,000				\$ 5,525,000
FY18 Appropriation	\$ 2,353,000				\$ 2,353,000
FY19 Appropriation	\$ 2,500,000				\$ 2,500,000
FY20 Appropriation	\$ 7,700,000				\$ 7,700,000
FY21 Appropriation			\$ 14,300,000	\$ 7,700,000	\$ 22,000,000
FY22 Appropriation		\$ 857,708,000			\$ 857,708,000
Total Appropriation to Date:	\$ 18,078,000	\$ 857,708,000	\$ 14,300,000	\$ 7,700,000	\$ 897,786,000
<i>Remaining Balance:</i>					\$ 800,786,000
Remaining Balance Change From Last Meeting:					\$ (512,886,000.00)
Total Allocations to Date:	\$ 18,078,000	\$ 20,100,000	\$ 14,300,000	\$ 7,700,000	\$60,178,000

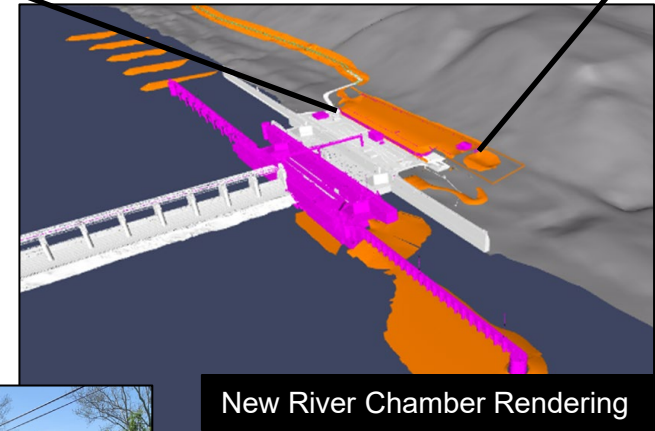
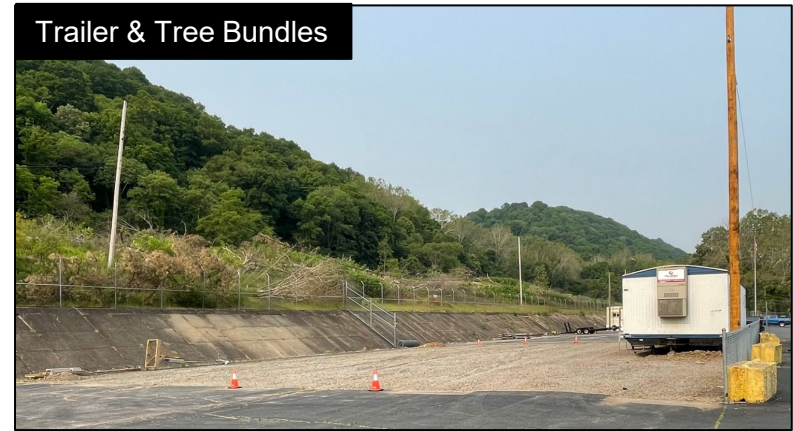
Commentary:

- Montgomery cost certification – complete
- Montgomery Concrete Batch Plant Site Development contract – in construction
- Montgomery Esplanade Site Development contract – in construction
- Montgomery groundbreaking ceremony scheduled for 11 August 2023.
- Montgomery New River Chamber 100% design – on schedule
- Montgomery New River Chamber contract – Solicitation in end of 2023; scheduled award in 2024

MONTGOMERY LOCK DETAILS – ISSUES/CHALLENGES

Issues and Challenges

- Facility failure prior to completion
 - ✓ Completing maintenance repairs prior to construction
 - ✓ Conducting routine inspections during construction
 - ✓ Continue maintenance during construction as needed
- Construction cost/Inflation
 - ✓ Evaluate transfer of risk contractually
 - ✓ Utilize economic price adjustment
- Market condition
 - ✓ Engaged with industry partners



PROJECT: UPPER OHIO – EMSWORTH LOCK FUNDING AND KEY ACTIVITIES

	GI-PED	BIL	CG	IWTF	Total
Emsworth Lock Total Cost (BIL 2022 Index)					\$ 1,008,224,000
FY17 Appropriation					\$ -
FY18 Appropriation					\$ -
FY19 Appropriation					\$ -
FY20 Appropriation					\$ -
FY21 Appropriation					\$ -
FY22 Appropriation		\$ 77,000,000	\$ 3,141,325	\$ 3,258,675	\$ 83,400,000
Total Appropriation to Date:	\$ -	\$ 77,000,000	\$ 3,141,325	\$ 3,258,675	\$ 83,400,000
<i>Remaining Balance:</i>					\$ 924,824,000
Remaining Balance Change From Last Meeting:					\$ -
Total Allocations to Date:	\$ -	\$ 2,233,500	\$ 3,141,325	\$ 3,258,675	\$8,633,500

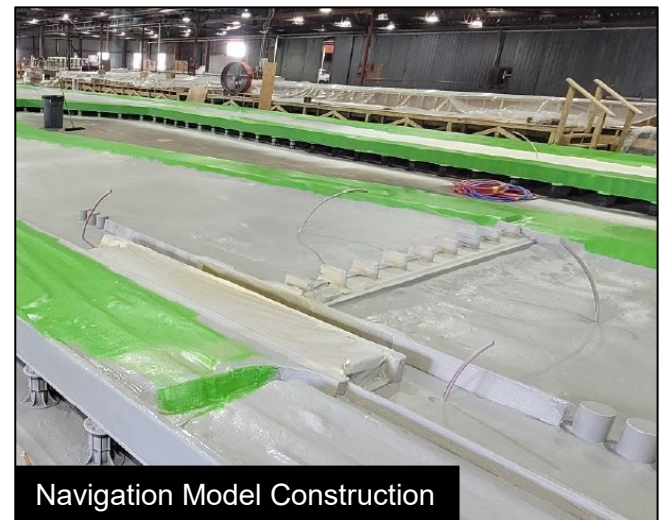
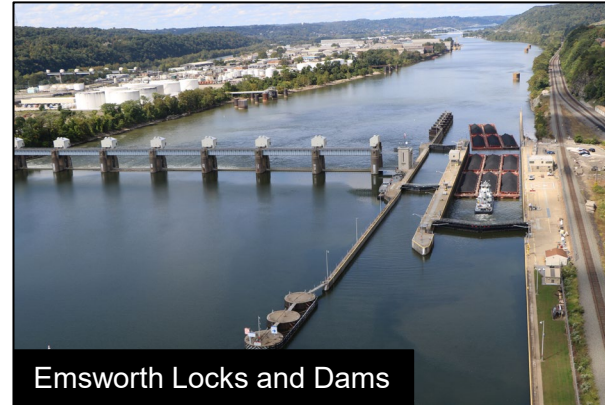
Commentary:

- Physical modeling – under construction
- In river geotechnical and environmental investigations – Awarded
- Initiated real estate acquisition activities for future batch plant and potential laydown sites

EMSWORTH LOCK DETAILS – ISSUES/CHALLENGES

Issues and Challenges

- Funding for major contract - CIS dependent
- Failure of Lock Chamber before or during construction
 - ✓ Advanced maintenance being implemented
- Real Estate Acquisition in an Industrial Corridor
 - ✓ Starting acquisition activities early
 - ✓ Environmental challenges



PROJECT: UPPER OHIO – DASHIELDS LOCK FUNDING AND KEY ACTIVITIES

	GI-PED	BIL	CG	IWTF	Total
Dashields Lock Total Cost (BIL 2022 Index)					\$ 1,055,308,000
FY17 Appropriation					\$ -
FY18 Appropriation					\$ -
FY19 Appropriation					\$ -
FY20 Appropriation					\$ -
FY21 Appropriation					\$ -
FY22 Appropriation			\$ 3,141,325	\$ 3,258,675	\$ 6,400,000
Total Appropriation to Date:	\$ -	\$ -	\$ 3,141,325	\$ 3,258,675	\$ 6,400,000
<i>Remaining Balance:</i>					\$ 1,048,908,000
Remaining Balance Change From Last Meeting:					\$ -
Total Allocations to Date:	\$ -	\$ -	\$ 3,141,325	\$ 3,258,675	\$6,400,000

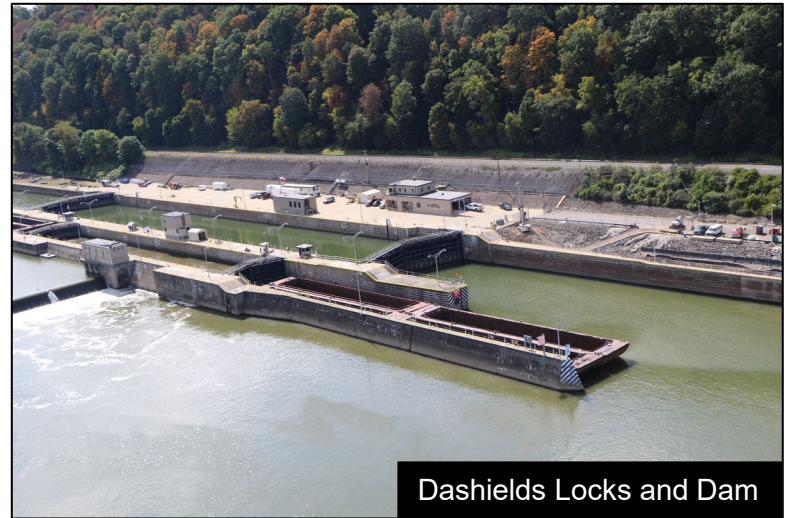
Commentary:

- Design – start in 2025
- Preliminary efforts to include geotechnical, environmental, and real estate

DASHIELDS LOCK DETAILS – ISSUES/CHALLENGES

Issues and Challenges

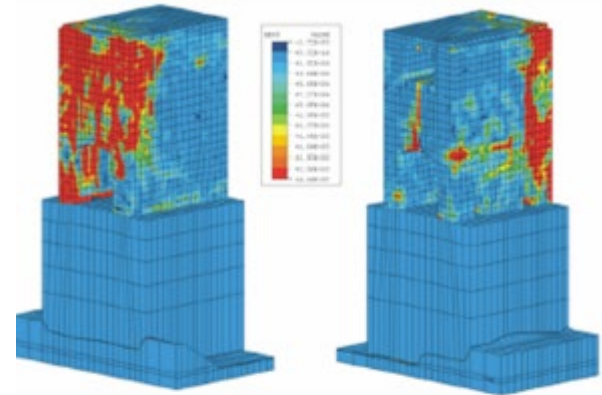
- Funding for design and major contract – CIS dependent
- Failure of Lock Chamber before or during construction
 - ✓ Advanced maintenance being implemented
- Real estate acquisition in an industrial corridor
 - ✓ Start acquisition activities early
 - ✓ Environmental challenges





THANK YOU

Questions?



Middle Wall Cracking Pattern
Projected in Year 2060
Monolith Faces



COST EVOLUTION – BY FACILITY



Estimate (millions)	Montgomery	Emsworth	Dashiels	
2016 Authorized cost	\$1,050	\$1,016	\$1,080	\$3.1 B
2019 VE Study	\$677.6	\$578.5	\$547.8	\$1.8 B
Feb 2021	\$697.4	\$701.9	\$759.5	\$2.17B
Oct 2021	\$873.4	\$867.9	\$950.1	\$2.7B
IIJA 2021	\$897.8	\$741.7	\$715.9	\$2.3B
BIL 2022 Index	\$1,185.6	\$1,008.2	\$1,055.3	\$3.2B

- 2016 Authorized cost: Certified, Pre-VE study, assumed concurrent construction.
- 2019 VE Study: Certified, Post-VE study, assumed concurrent construction.
- Feb 2021: Escalated from 2019 certified VE cost estimate, did not include the 30% design information, sequential construction, escalated to midpoint of construction.
- Oct 2021: Included 30% design items, some VE items and way forward on some other key items (drilled shaft foundation, guard wall length, cofferdams). Midpoints of Ems and Dash were further out than in the IIJ scenario.
- IIJA 2021: Originally assumed that IIJA would fund entire Upper O project. Included the 30% Montgomery design and necessary key items. The design for Ems and Dash would follow directly on the heels of the Montgomery design. Reduced contingency (from approx 40% to approx 30%) and moved the midpoint of construction to the right for Montgomery to account for longer period of performance. Emsworth and Dashiels were assumed to be constructed concurrently (same mid point of construction) and followed Montgomery construction start by 1.5 to 2 years. Emsworth construction midpoint moved about 3 years to the left and Dashiels move about 6 years to the left.
- BIL 2022 Index: Overall contingency is now at about 50% +/- of the base costs. Started with IIJA 2021 estimate and applied September 2021 CCWICS escalation factors, then the March 2022 escalation factors, then assumed 2 years of 10% inflation until the escalation factors were gradually reduced to something in the 2.6% range. Emsworth projected award in FY26. Dashiels projected award in FY29.